

The background of the slide features a microscopic view of cells, likely plant tissue, with prominent cell walls. The image is overlaid with a semi-transparent blue rectangle on the left side, which contains the title text. A vertical beige bar is visible on the far right edge of the slide.

Weather Forecasting Using Logistic Regression



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DEPARTMENT OF COMPUTER ENGINEERING

"Weather forecasting using Logistic Regression"

By group no. 01

UNDER THE GUIDENCE OF

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INTRODUCTION

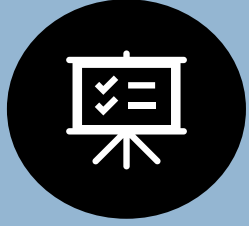
INTRODUCTION OF PROJECT

- Weather conditions changes rapidly throughout the world. We need correct forecasts in day to day life. Today, we are dependent on weather forecasting. In my ways, we are closely related to weather forecast like from agriculture sector to industry sector and from daily traveling to daily commuting, I think in future we will be more dependent on weather forecast. As we go through the entire world, mostly are suffering from the continuous climate changes and it's effects. Future predictions are done based on the present state of dynamics. Now, it is very important to predict the perfect weather forecast report without any error and to ensure easy and seamless mobility and versatility , as well as good and safe day to day operations.



PROBLEM STATEMENT

- The Rain in Australia dataset contains about 10 years of daily weather observations from numerous Australian weather stations. Here's a small sample from the dataset.



OBJECTIVES

- The goal of weather prediction is to provide information people and organizations can use to reduce weather-related losses and enhance societal benefits, including protection of life and property, public health and safety, and support of economic prosperity and quality of life.



MOTIVATION

Collecting data every day can show you patterns and trends, and help you figure out how our atmosphere works. Weather data includes any facts or numbers about the state of the atmosphere, including temperature, wind speed, rain or snow, humidity, and pressure.



SOFTWARE AND HARDWARE REQUIREMENTS

Software:

1. Latest version of Python.
2. Python libraries.

Hardware:

Central Processing Unit (CPU).

2. RAM : 8 GB minimum, 16 GB or higher is recommended.
3. Graphics Processing Unit (GPU).
4. Operating System: Ubuntu or Microsoft Windows.



METHODOLOGY

- The following topic is covered in this problem statement.
- 1) Downloading a real-world dataset from Kaggle.
- 2) Exploratory data analysis and visualization.
- 3) Splitting a dataset into training, validation & test sets.
- 4) Filling/imputing missing values in numeric columns.
- 5) Scaling numeric features to a $[(0,1)]$ range.
- 6) Encoding categorical columns as one-hot vectors.
- 7) Training a logistic regression model using Scikit-learn.
- 8) Evaluating a model using a validation set and test set.
- 9) Saving a model to disk and loading it back.



FEATURES OF WEATHER FORECASTING

- In future, we have plans to utilize low-cost Internet of Things (IoT) devices, such as temperature and humidity sensors, in collecting weather data from different parts of a city. The use of different sensors could increase the number of local features in the training dataset. This data, along with the weather station data, will further improve the performance of our prediction models. As machine learning advances, more models start integrating, and going with it accuracy becomes more better and forecasting will become increasingly accurate. More scope and potential of global nowcasting, which is relatively new addition to weather forecasting. As smart system penetration grows worldwide, more people will gain access to accurate, hyperlocal weather forecasting as well.



CONCLUSION

We successfully predicted the rainfall using the linear regression but here this is not very accurate only some times any way it depends upon the climate changes to season to season. Here we are taking only summer season weather data set it only useful to predict rainfall in summer season.



REFERENCES

1. Data Mining: The Textbook 2015 Edition, Kindle Edition by Charu C. Aggarwal .
2. Data Mining: Concepts and Techniques By Jiawei Han, Jian Pei, Micheline Kamber.

THANK YOU